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| 10/001,920 | 10/31/2001 | Norbert Ammann | 9303-3 | 8947 |

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EXAMINER

LEE, GRANVILL D

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| ART UNIT | PAPER NUMBER |
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2825

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/001,920

Applicant(s)

AMMANN ET AL.

Examiner

Granvill D Lee, Jr

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 & 3-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Applicant's Argument

After review of applicant's amendments (cancelled clm. 2) and comments, the examiner finds such arguments unpersuasive. Applicant's comments as to Yamazaki et al. and Fukutomi et al. are well taken, however in further review of the prior art, the examiner has found that Casey et al. further reads upon applicant's claimed invention. As these are new grounds for rejection necessitated by applicant's amended claimed invention, and they are to be considered final rejections of the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-18 and 20-26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Casey et al. (US Pat. 5,480,503) in view of Yanazaki et al. (US Pat. 6,118,502).

In view of claims 1 and 14, Casey et al. discloses a device comprising an electrical circuit (Fig 1 #13) carried by a metallized carrier (Fig. 1 #10) the electrical circuit (#13) comprising an electrically conductive thin-film (Col. 5 lines 1-5) or multi-layer ceramic (MLC) structure (Col 1 lines 9-18) being provided on a surface of the metallized carrier element (#14), wherein one or more further components of the electrical circuit that are electrically coupled to the thin (metalized) film (Col. 5 lines 1-5) or multi-layer ceramic structure are arranged on a side of the electrically conductive thin film or multi-layer ceramic structure (Fig. 1 #13) facing the carrier element and wherein the carrier element (#14) is at least partially positioned between the one or more further components and the electrically conductive thin-film or multi-layer ceramic structure (Fig. 5). In regard to claim 14, Casey et al. teaches the application of an adhesive (Col. 2 lines 60-65) that is dried (Col. 2 lines 50-58), and the carrier removed of the temporary substrate (Col. 2 lines 60-65 & Figs. 3 & 4). But Casey et al. fails to show a plastic carrier element in the design of a semiconductor device. Yamazaki et al. shows that making a device using a temporary substrate method can be done using a plastic substrate (Abstr.).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to alter the multiplayer ceramic design of Casey et al. with those of a temporary substrate design of Yamazaki et al. with the need to obtain a portable device. Yamazaki et al. found that using lightweight material having a degree of shock resistance, namely plastics, would assure a

better portable device result.

In view of claim 1, Casey et al. depicts a device where the components of the electrical circuit (Fig. 6 #13) are arranged on the side of the electrically conductive structure facing toward and away from the carrier element are at least partly embedded in the carrier element (#18).

In view of claim 3, Casey et al. shows a device, where the electrically conductive structure comprises a single-layer (Abstr.).

In view of claim 4, Casey et al. discloses a device wherein the electrically conductive structure comprises a single-layer or multi-layer thick-film structure (Abstr.).

In view of claims 5-6, Casey et al. discloses a device, where the electrically conductive structure comprises one or more single-layer or multi-layer electrically conductive films (Abstr.).

In light of claim 7, Casey et al. points out a device where the electrically conductive structure is arranged and constructed so that it forms passive and/or active electronic components (Col. 1 lines 10-20) Yamazaki et al. also discloses similar components (Abstr.).

In view of claim 8, Casey et al. discloses a device where the electrically conductive structure is arranged and constructed so that it forms strip conductors (Col. 1 lines 10-20) connecting specific points on the surface of the carrier element with one another (Fig. 6 Align).

In view of claim 9, Casey et al. discloses a device wherein the components of the electrical circuit (#13) are also arranged on a side of the electrically conductive structure remote (facing toward and away from the carrier element) (Fig. 6), where components on the side of the electrically conductive structure remote from the carrier element being adhesively secured or soldered on said structure (Col. 3 lines 44-50).

In regard to claim 10, Casey et al. includes a device where the components of the electrical circuit arranged on the side of the electrically conductive structure facing the carrier element comprise various components (Col. 1 lines 10-20), whereas Yamazaki et al. suggests both active and passive components (Abstr.).

In view of claim 11, Casey et al. discloses a device where the components of the electrical circuit (#13) arranged on the side of the electrically conductive structure facing (toward and away from) the carrier element comprise one or more connecting devices (Fig. 6) for electrical connection of the arrangement to other components of the system containing the arrangement.

In view of claim 12, Casey et al. discloses the connecting devices comprising one or more contact elements suitable for soldering the arrangement onto an electrical printed circuit board (Col. 2 lines 20-40).

In view of claims 13 & 26, Casey et al. shows components of the electrical circuit arranged on the side of the electrically conductive structure

facing the carrier element are elements (Fig. 6) designed for surface printed circuit board mounting (Col. 2 lines 20-40).

In view of claim 15, Casey et al. discloses applying the electrically conductive structure to the side of the temporary substrate comprises applying a single-layer or multi-layer thin-film structure to the temporary structure (Abstr.).

In view of claim 16, Casey et al. teaches applying the electrically conductive structure to the side of the temporary substrate comprises applying a single-layer or multi-layer thick-film structure to the temporary substrate (Abstr. & Col. 1 lines 10-25).

In view of claim 17, Casey et al. again shows that applying the electrically conductive structure to the side of the temporary substrate comprises applying one or more single-layer or multi-layer electrically conductive films to the temporary substrate (Col. 2 lines 10-19).

In view of claim 18, Casey et al. points out that applying the electrically conductive structure to the side of the temporary substrate is effected such that the layer structure of the electrically conductive structure can be opposite to the layer structure of the electrically conductive structure present in the finished arrangement on the carrier element (Fig. 6).

In view of claims 19 and 23, Casey et al. shows mounting further components of the electrical circuit on the electrically conductive structure is effected by adhesion or soldering (Col. 3 lines 44-65).

In view of claim 20, Yamazaki et al. discloses applying the composition forming the carrier element is effected by casting or injection-moulding plastics material at least partly around the further components of the electrical circuit (Col. 10 lines 25-31).

In view of claim 22, Casey et al. explains that after removing the temporary substrate additional components of the electrical circuit are mounted on a side of the electrically conductive structure remote from the carrier element (Col. 4 lines 15-20).

In view of claim 24, Yamazaki et al. discloses the active or passive components of at least one semiconductor chip are used in the device formation (Abstr).

In view of claim 25, Yamazaki et al. discloses the connecting devices comprising at least one electrical connector in forming the device (Col. 4 lines 50-54).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casey et al. (US Pat. 5,480,503) in view of Yanazaki et al. (US Pat. 6,118,502) in further view of Malloy et al. (US Pat. 5,455,202).

In view of this claim, Casey et al. discloses a device comprising an electrical circuit carried by a metallized carrier and the electrical circuit comprising an electrically conductive thin-film or multi-layer ceramic (MLC) structure being provided on a surface of the metallized carrier element, wherein

one or more further components of the electrical circuit that are electrically coupled to the thin film or multi-layer ceramic structure. Yamazaki et al. uses a plastic material to form the substrate of the device, but both fail to remove the temporary substrate through an etching process. However, Malloy et al. discloses a process where the temporary substrate contains an etchable layer which releases the temporary substrate (abstr.).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the temporary carrier techniques of both Casey et al. and Yamazaki et al. in favor of the etchable layer method of Malloy et al. because the use of such a temporary structure only serves as a grasping or support aid in the process, and may do more harm than good further into the device processing steps (Col. 4 lines 8-25).

Response to Applicant

It is shown that the prior art reads on the cited claims, however some weight may be achieved in the plastic carrier thickness and the devices/connectors applicable in that range, those devices that should be soldered and specific devices given to thin-film verses multi-film conditions.

Final Action

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in CFR 1.136(a).

Art Unit: 2825

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications for the examiner should be directed to Granvill Lee whose telephone number is (703) 306-5865. The examiner can be normally reached on Monday thru Thursday from 7:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are not successful, the examiner's supervisor, Matthew Smith can be reached on (703) 308-1323. The fax phone number for this group is (703) 308-7722.

Any inquiry of a general nature relating to status or otherwise should be directed to the receptionist whose telephone number is 703-308-1782.

GI
8/3/03

Examiner
Granvill Lee
Art Unit 2825



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